



Pedestrian Safety Action Plan 2014–2016

May 2014



Transport
for NSW



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1. INTRODUCTION

THE GOVERNMENT IS STRONGLY COMMITTED TO IMPROVING ROAD SAFETY FOR THE NSW COMMUNITY. THE 2013 PROVISIONAL NSW ROAD TOLL WAS 339 FATALITIES, 30 LESS THAN 2012, AND THE LOWEST ANNUAL ROAD TOLL SINCE 1924.

The NSW Road Safety Strategy for 2012-21 aims to reduce road trauma in NSW over the next decade. It sets out the strategic direction the NSW Government is taking to address this important issue, and aims to reduce fatalities and serious injuries by at least 30 per cent.

To achieve the NSW Road Safety Strategy objectives, Transport for NSW identified the need for the development of a specific action plan to address pedestrian safety.

Pedestrians are vulnerable road users and in the event of a crash, unlike vehicle occupants, have little or no protection to shield them from the force of a crash. Therefore, pedestrian related crashes often result in more severe outcomes.

Transport for NSW's Centre for Road Safety is the lead agency for road safety in NSW and in consultation with stakeholders has developed a range of countermeasures to address pedestrian safety. Road safety experts and stakeholders included:

- NSW Police Force
- Local Government NSW
- Motor Accidents Authority
- Department of Education and Communities
- Department of Family and Community Services
- Pedestrian Council of Australia
- NRMA Motoring and Services
- Insurance Australia Group
- The George Institute for Global Health
- Transport and Road Safety Research, UNSW
- City of Sydney Council
- Monash University Accident Research Centre

This action plan has been developed collectively based on the feedback received from stakeholders. The Centre for Road Safety will continue coordinating road safety initiatives across Government, and work with stakeholders to implement the actions contained within this plan.

**The Hon. Duncan Gay MLC
Minister for Roads and Freight**

2. PEDESTRIAN ROAD TRAUMA

In 1960 there was a peak of 367 pedestrian fatalities, which accounted for more than one third of all road fatalities in NSW. Since this time, pedestrian fatalities have decreased significantly.

In 2011, there were 49 pedestrian fatalities on NSW roads, accounting for 13 per cent of the road toll. 55 pedestrians were killed in 2012 and 42 in 2013.

While these recent numbers are at record low levels, the NSW Government recognises that over the coming decade there is more work to do in the implementation of the NSW Road Safety Strategy. There are various factors which may contribute to pedestrian crashes across the network. This includes a growing population, ageing population and walking becoming a more popular mode of transport.

Road safety crash data analysis undertaken from 2007 to 2011 has informed a range of countermeasures detailed in this action plan, some of the data highlights are provided below.

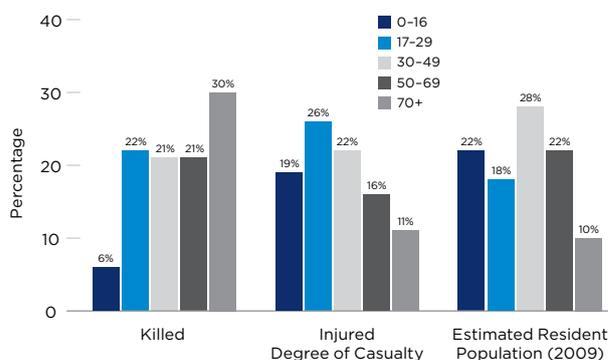
2.1 AGE RELATED PEDESTRIAN ROAD TRAUMA

Young pedestrians aged between 17 to 29 are over represented in road trauma, making up 22 per cent of fatalities and 26 per cent of injuries and yet only 18 per cent of the NSW population.

The elderly, aged 70 years or more represent only 10 per cent of the population, yet account for 30 per cent of all pedestrian fatalities. Given the projected ageing population, this represents a growing risk.

Further, males are over represented in fatalities and injuries accounting for 73 per cent of pedestrian fatalities between 2007 and 2011.

Pedestrian Casualties, 2007 to 2011, Degree of Casualty, Age Group



2.2 ROAD ENVIRONMENT AND LOCATION

Speed Limits

Speed limits play a critical role in pedestrian safety. It has been well researched and demonstrated that increased vehicle speeds bring an increased crash risk to not only vehicle occupants, but also pedestrians.

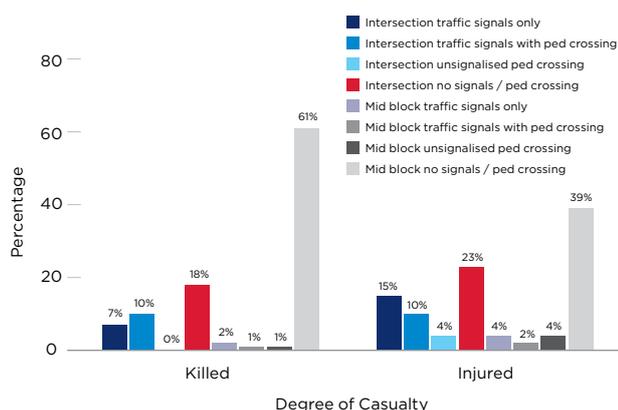
Generally, speed limits are zoned at 50km/h or lower in high pedestrian activity areas. Higher travel speed leads to sharp increases in injury risk to pedestrians, which poses particular concerns to an aging society.

In NSW, the majority of pedestrian fatalities occur on roads with a posted speed limit of 60km/h or more. Whereas, nearly two-thirds of all injuries occur on roads with a posted speed limit of 50km/h or less.

Location Type

Mid-block locations with no traffic signals or pedestrian controls account for the majority of fatalities and almost 40 per cent of injuries. The largest proportion of casualties also occur on local roads and within metropolitan areas.

Pedestrian Casualties, 2007 to 2011, Degree of Casualty, Location Types x Traffic signals/ Pedestrian Controls



2.3 ALCOHOL INVOLVEMENT

Alcohol involvement in pedestrian casualties (with a pedestrian's blood alcohol content (BAC) of 0.05 or more) aged between 17 to 49 accounts for at least half of all pedestrian fatalities and 12 per cent of injuries.

2.4 TIME OF DAY

Pedestrian fatalities are more prevalent during autumn and winter months. Data also suggests during these times that a higher proportion of fatalities occur during darkness. Shorter days with peak pedestrian activity in reduced lighting conditions may be contributing to this outcome.

2.5 SERIOUS INJURIES

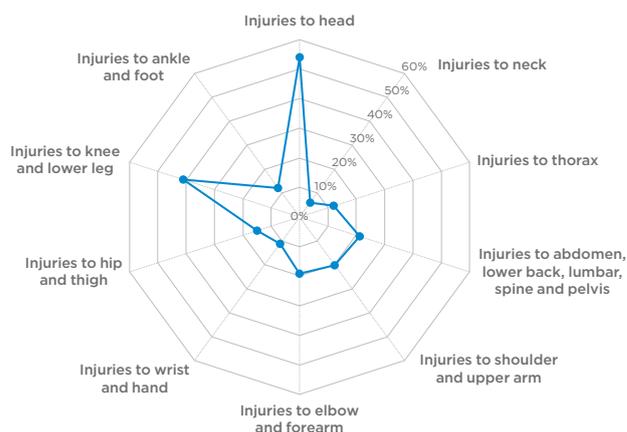
Transport for NSW commissioned the Transport and Road Safety (TARS) Research Group at the University of NSW to investigate links between the NSW crash data, Hospital and Registry of Births, Deaths and Marriages datasets. The aim was to identify and analyse serious injuries to support delivery of the NSW Road Safety Strategy.

The linkage found between 2001-2011, 68,383 serious injuries, representing around one quarter of all injuries. Of this, 13 per cent of all serious injuries involved a vehicle impact with a pedestrian.

The most common types of injuries sustained by pedestrians were injuries to head, to knee and lower leg and injuries to the abdomen, lower back, lumbar spine and pelvis.

The research also analysed the length of hospitalised stay, with pedestrians experiencing the longest average stay of 7.5 days. The study found that people aged 80 years or more, spent on average twice as long in hospital compared to those aged under 50.

Pedestrian Serious Injuries, Proportion of Injury Diagnoses, NSW, 2001 to 2011



SUMMARY OF THE MAIN ISSUES FOR PEDESTRIAN CASUALTIES:

Who

- Elderly and 17-29 age group are over represented in fatalities
- Males over representation in casualties
- Alcohol presence for pedestrian fatalities

Where

- Fatalities in speed zones 60km/h or more
- Casualties in metropolitan areas
- Casualties at mid block locations and on unclassified local roads

3. COUNTERMEASURES

The NSW Government has a range of pedestrian related programs in place including:

- Road safety education and awareness programs
- Road engineering programs and appropriate speed limits
- High visibility Police enforcement and Sydney and Parramatta CBD Motorcycle Response Teams
- Local area traffic management programs
- Major road infrastructure projects and upgrades
- Active transport amenity programs
- Safety around schools programs
- Local Government Road Safety Officer programs

The NSW Government has adopted the internationally recognised and endorsed safe systems approach to road safety. This approach has underpinned the NSW Road Safety Strategy and the development of the Pedestrian Safety Action Plan.

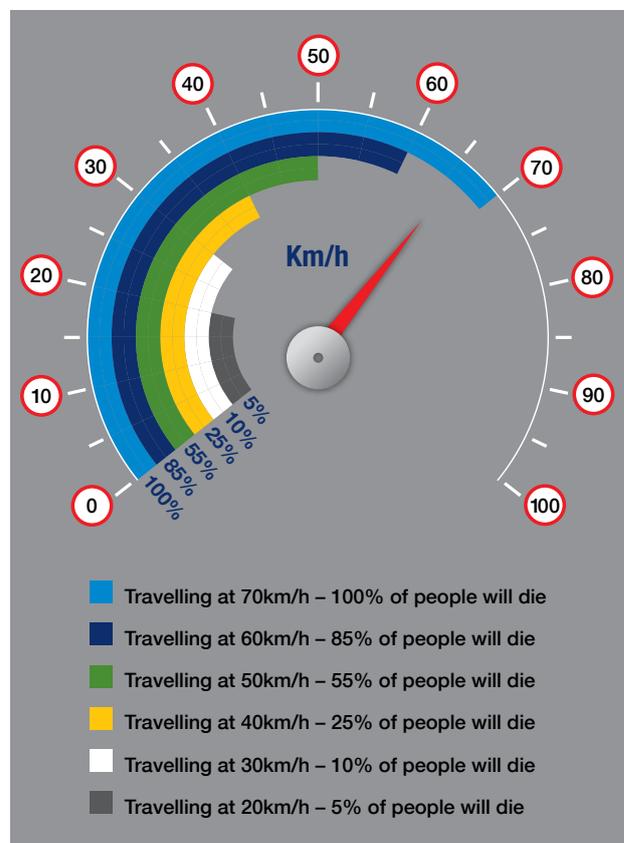
The approach takes a holistic view of the road transport system and interaction around the key components of road safety – the road user, road and roadside environment and vehicles and addresses important factors such as speed.

The approach recognises that error is inevitable and in the event of a crash, the outcomes should not be life threatening or result in serious injury. The above interactions all play a vital role in ensuring a safe road transport system.

The following is a summary of a number of successful pedestrian safety countermeasures which the Government is currently implementing.

3.1 SAFER SPEEDS

Studies show that small increases in travel speed can result in large increases in braking distances and impact speed, substantially increasing the risk of a pedestrian being killed or seriously injured. Consistent with this, slight reductions in vehicle speed can significantly reduce the severity of outcomes for pedestrians in a crash.



This graphic shows the percentage of pedestrian fatalities when struck by an oncoming vehicle at various speeds.

50km/h General Urban Speed Limit (default speed limit)

Most suburban streets or built up areas across NSW have a 50km/h general urban speed limit. This speed limit was introduced in 1998 to reduce the severity and likelihood of crashes occurring with a particular focus on vulnerable road users, including pedestrians. It has been part of a national approach based on international and national research to support its implementation and has reduced crashes in NSW.

40km/h High Pedestrian Activity Areas

Walking is a popular activity. At some point everyday we are all a pedestrian within the road environment. Whether it is walking for leisure, commuting to work or gaining access to the local shops, it is a simple and enjoyable activity. To support safe walking environments, the Government has been implementing 40km/h speed limits in areas of high pedestrian activity.

These areas are designed with a range of engineering treatments to reduce speed and increase the safety and amenity for pedestrians in areas such as shopping precincts. These areas generally feature a range of traffic calming measures that create a low speed environment ensuring safety for pedestrians. In NSW there are currently over 150 areas.

Shared Zone

Shared zones are being implemented across NSW, where the space is shared by vehicles and pedestrians. Shared zones have a speed limit of 10km/h and drivers must give way to pedestrians at all times. The zones are designed to ensure all users are able to use the space safely.

Shared Paths

Shared paths are becoming a popular treatment which can be used by both pedestrians and bicycle riders off road. Research is underway through Transport for NSW to obtain best practice information on shared facilities to ensure both users can use the space safely.

Red-Light Speed Cameras

As part of the NSW Speed Camera Strategy, the Government is rolling out at identified locations red-light speed cameras. Whilst these cameras enforce speeding and red light running drivers, they also help to protect pedestrians, with both these behaviours increasing the crash risk for pedestrians at intersections.

3.2 SAFER ROADS

NSW Safer Roads Program

The NSW Safer Roads Program has been developed as part of the NSW Road Safety Strategy and is a major program. A key component of this program includes a pedestrian safety sub-program which targets safety at locations with a high pedestrian crash history through the implementation of infrastructure treatments.

Pedestrian Infrastructure Treatments

A wide range of pedestrian facilities are used in NSW to address pedestrian safety and amenity. These are used to support safe road use by pedestrians and improve connectivity using established selection criteria and guidelines. Some of these treatments include signalised pedestrian facilities which comprise signalised pedestrian crossings and red left and right hold arrows. Signalised facilities support safe road use by pedestrians providing safer opportunities to cross the road, in particular at busy locations in central business areas where these facilities give preference to pedestrians with minimum wait times.

Additionally, a range of non-signalised options are also used such as two staged pedestrian crossings, marked foot crossings, wombat crossings, pedestrian refuges and median islands, pedestrian safety barriers and kerb blisters. Major investment is also considered at identified locations for treatments that separate pedestrians from vehicles such as pedestrian bridges.

3.3 SAFER VEHICLES

Under the safe systems approach for pedestrian safety, vehicle design and maintenance is a key component. Over recent times consumer demands for safer vehicles has increased. With this, active safety features are being introduced into the market which have safety benefits for pedestrians such as autonomous braking. Likewise, ensuring modified vehicles are compliant with design rules will ensure safety for vulnerable road users.

Vehicle Safety Research Group

Transport for NSW is a member of the Vehicle Safety Research Group, which engages the Monash University Accident Research Centre to do vehicle-related research that is used to inform vehicle related road safety policies. This group is undertaking research into the comparative risk different types of vehicles pose pedestrians. Upon its completion, this will inform future policies relating to the vehicle-pedestrian interaction.

Australasian New Car Assessment Program

Transport for NSW contributes to the Australasian New Car Assessment Program, also known as ANCAP. The program tests new vehicles to the market, rating the vehicle's safety in the event of a crash. Under the testing regime, ANCAP also considers the impact on pedestrians in the event of a crash. Additionally, the ANCAP Road Map identifies future road safety developments that new vehicles will need to possess to score a five star safety rating. This includes further safety features for pedestrian safety.

Australian Design Rules

The Australian Design Rules are national standards for vehicle safety. The Rules outline a range of requirements which new or imported vehicles must comply with. Transport for NSW represents NSW on various national committees which leads and consults on the development of new and revised Rules.

Vehicle Standards Working Group

Transport for NSW has established the Vehicle Standards Working Group to provide advice on vehicle standards in NSW. The group comprises of key road safety stakeholders and representatives from the motor enthusiast community and the automotive industry. The work of the group will support improved standards for pedestrian safety within NSW.

3.4 ROAD SAFETY TECHNOLOGY

New and emerging technologies will play a substantial role in reducing pedestrian deaths and injuries in the future. Transport for NSW has a dedicated Road Safety Technology section that assesses the potential road safety benefits of new technologies using the safe systems approach.

It has been researching a number of emerging technologies that have the potential to reduce the number of pedestrian crashes including vehicle based camera systems that detect pedestrians and warn drivers of potential collisions, as well as forward looking infra-red cameras that can detect pedestrians in the dark.

Advisory Intelligent Speed Adaptation Technology warns drivers when they exceed the speed limit and has been shown to have the potential to reduce fatal crashes by up to 19 percent. This could significantly assist in reducing speeding in high pedestrian traffic areas such as shopping areas and in school zones.

Also being developed is a smart camera system known as the Intelligent Pedestrian Safety Systems (iPEDSS) that will allow road safety staff to monitor intersections with a high pedestrian collision rate. iPedss will have the ability to detect near collisions as well as actual crash events and provide researchers with information that will assist engineers to develop better countermeasures tailored to the individual site.

3.5 SAFER PEOPLE

There are many behavioural programs that are in place across Government to enhance pedestrian safety. These include public awareness campaigns, police enforcement, in-school education, the safety around schools program and locally implemented programs through the Local Government Road Safety Program.

School Zones

Providing a safe road environment for students adjacent to school premises is paramount. School zones are in place to protect children on their journey to and from schools at the times and places where they are most often found in higher numbers. They are in place at school entry points and operate for a short period at the start and the end of the school day. As part of the program, measures include 40km/h speed zones, enhanced warning signage, infrastructure treatments, flashing lights and school crossing supervisors.

School Road Safety Education

Transport for NSW provides funding for the NSW School Road Safety Education Program which addresses pedestrian safety through all stages including early childhood, primary and secondary. Road safety education is mandatory in NSW schools as part of the Personal Development, Health and Physical Education curriculum. Transport for NSW works closely with the Department of Education and Communities on the development of age appropriate resources.

Police Enforcement

Transport for NSW and Roads and Maritime Services funds additional high visibility Police enforcement across the road network to target behaviours that contribute to unsafe road use. Transport for NSW has funded the establishment of the Sydney and Parramatta CBD Motorcycle Response teams, which are focusing on road safety and congestion. The team addresses unsafe road practices such as queuing across intersections blocking pedestrian access along with supporting safe crossing by pedestrians. The operations are undertaken at key locations in the Sydney and Parramatta CBDs.

Local Government & Road Safety

Local Governments play a vital role in delivering localised road safety programs for their communities. Funding is provided by Transport for NSW for the Local Government Road Safety Officer Program which is administered through Roads and Maritime Services.

The programs developed by local governments are based on crash data and road safety issues affecting their areas. These include pedestrian awareness campaigns that target drivers through print media and radio, as well as presentations to older road users to help older pedestrians understand their risk, refresh their knowledge and provide advice and tips for safe travel in their local area.

The expansion of the local government road safety program will see further road safety improvements across the state.

NSW Long Term Transport Master Plan

The NSW Government released the Long Term Transport Master Plan for the next 20 years in 2012. The plan sets the direction to bring together all modes of transport, across all regions of the state into a world class integrated network that puts the customer first. As part of the plan, it identified the need for the development of the Sydney's Walking Future to get people walking more across greater Sydney.

Customer feedback indicated that safety is a major consideration when people are walking, including enforcement of road rules, reduced speed in busy areas and longer pedestrian phases at traffic signals.

The Sydney's Walking Future strategy outlines actions to get more people walking across Sydney as a mode of transport. These actions have three broad themes:

- Promoting walking for transport through information, wayfinding and travel behaviour change programmes
- Connecting communities by focusing on major infrastructure projects such as Wynyard Walk, the introduction of a pedestrian zone on George Street to be aligned with Light Rail and the prioritisation of initiatives within 2km catchments of centres and interchanges



- Engaging with partners to maximise the impact of investment in walking related initiatives across NSW Government, local government, NGOs, the private sector and the community.

Sydney City Centre Access Strategy

The Sydney City Centre Access Strategy recognises pedestrians as the dominant mode for trips within the city centre and establishes walking as a key element of the integrated the transport network in the city centre.

The Access Strategy outlines actions to make walking quicker, safer and easier by reducing the delays to pedestrians at intersections and establishing 40km/h speed limits within the core of the city centre. It also identifies footpath improvements on streets with the highest levels of pedestrian activity and commits to establishing pedestrian connections such as Wynyard Walk and pedestrian spaces such as the George Street which will be delivered as part of the CBD and South East Light Rail. Access strategies for other centres will be rolled out in coming years.

Regional Transport Plans

Regional Transport Plans have also been developed under the Master Plan to further support walking as a mode of transport. These plans will promote safe walking and improve amenity in regional areas, focusing on 2km catchments of interchanges and centres.

4. ACTION PLAN 2014-2016

Over the next three years, Transport for NSW will work with stakeholders to implement the following actions:

SAFER SPEEDS

A greater proportion of fatalities occur within speed zones of 60km/h or more, lowered speed limit environments reduces the risk of crashes and the severity of crashes involving pedestrians.

Address the safety needs of vulnerable road users through lower speed limits and traffic calming measures.		
Action	Description	Responsibility
1.	Evaluate existing 40km/h high pedestrian activity areas.	Transport for NSW
2.	Subject to evaluation, increase the roll-out of lower speed limit areas with supporting infrastructure (expansion and new).	Roads and Maritime Services
3.	Trial an extension of timed 40km/h on roads with shopping centres and/or entertainment precincts at high risk times.	Transport for NSW Roads and Maritime Services
4.	Apply the 50km/h general urban speed limit consistently across both state and local government managed roads.	Roads and Maritime Services Local Government
5.	Continue the targeted roll-out of red-light speed cameras to improve safety at signalised intersections.	Roads and Maritime Services
6.	Implement shared zones using the revised policy and guidelines across the network where appropriate.	Roads and Maritime Services Local Government
7.	Canvas international and interstate research and evaluation into best practice speed limits (e.g. 30km/h) to guide improvements for pedestrian safety in heavily pedestrianised areas.	Transport for NSW
8.	Promote the uptake and use of the advisory Intelligent Speed Adaptation applications to support compliance with speed limits.	Transport for NSW



SAFER ROADS

Infrastructure treatments that reduce the risk of crashes play a vital role. A focus targeting mid block locations and local roads will continue over the next three years.

Implement targeted infrastructure safety works with a focus on pedestrian safety, including the NSW Safer Roads Program.		
Action	Description	Responsibility
9.	Identify locations and implement pedestrian safety measures through the NSW Safer Roads program.	Transport for NSW Roads and Maritime Services
10.	Investigate additional offset pedestrian crossings at appropriate locations.	Roads and Maritime Services
11.	Review existing pedestrian safety treatments to ensure they are delivering the expected road safety outcomes.	Transport for NSW
12.	Roll-out with intersection improvements low cost treatments such as “call wait” indicators to acknowledge pedestrian presence with a focus on: <ul style="list-style-type: none"> • High Pedestrian Activity Areas and close proximity to major transport hubs, and • Other pedestrian safety projects. 	Roads and Maritime Services
Investigate improvements to signal phasing to increase pedestrian safety.		
Action	Description	Responsibility
13.	Review and develop policy to improve pedestrian safety at signalised intersections, including: continued roll-out of red turn arrows, extended walk time phasing and appropriate use of left turn on red lights signs.	Transport for NSW
14.	Investigate the benefits of amending signal hierarchy on some roads with default green for pedestrians and activated road sensors for vehicles, particularly in areas of high pedestrian activity areas and with increased likelihood of impaired and at-risk pedestrians.	Transport for NSW Transport Management Centre Roads and Maritime Services
Work with local government to make roads safer through improved information and tools.		
Action	Description	Responsibility
15.	Review existing and develop new materials and guides to provide local government practitioners with information on effective pedestrian facilities.	Transport for NSW Roads and Maritime Services
16.	Develop a guideline for pedestrian safety assessments.	Transport for NSW
17.	Work with road authorities and local traffic committees to improve consistency and compliance with Technical Directions, including line of sight at pedestrian crossings and refuges.	Roads and Maritime Services
Address the safety of older road users.		
Action	Description	Responsibility
18.	Implement measures at identified locations with a higher proportion of older pedestrians, including: <ul style="list-style-type: none"> • Lower speed limits • Traffic calming measures, and • Infrastructure and signal improvements. 	Transport for NSW Roads and Maritime Services

SAFER VEHICLES

Improvements to vehicle design standards and additional in vehicle safety features may lead to reduced severity of crash impacts on pedestrians.

Investigate improvements to vehicle standards.		
Action	Description	Responsibility
19.	Work with the Commonwealth Government for improved vehicle standards for pedestrian safety.	Transport for NSW
20.	Implement approved outcomes of the School Bus Safety Community Advisory Committee around bus warning lights and signage.	Transport for NSW
21.	Undertake research on: <ul style="list-style-type: none"> The effect of vehicle design on pedestrian safety, including how the A-pillar affects driver visibility. Risks posed by modified vehicles to pedestrians, including protrusions. 	Transport for NSW
22.	Promote the use and adoption of safety technologies, such as reversing cameras and sensors, autonomous braking systems and daytime running lights and other safety features, through ANCAP, fleet managers and other means.	Transport for NSW
23.	Explore further means to reduce the crash risk for pedestrians through the adoption of vehicle safety features in the ANCAP Rating Road Map 2011-2017.	Transport for NSW
24.	Work with NSW Government Fleet Managers to incorporate into fleet purchasing policies high pedestrian safety rated vehicles.	Transport for NSW

ROAD SAFETY TECHNOLOGY

Road safety technologies will play a substantial role in reducing road trauma on our roads. Continued research and trialling of technologies will help bring these safety features to NSW roads sooner.

Trial innovative technology solutions to improve pedestrian safety.		
Action	Description	Responsibility
25.	Research and pilot vehicle and infrastructure based smart digital camera systems that detect the presence of pedestrians and warn approaching drivers.	Transport for NSW
26.	Research and trial technologies such as pedestrian user friendly intelligent technology and traffic light count down systems to explore their potential to improve safety.	Transport for NSW



SAFER PEOPLE

To change pedestrian and motorists behaviour, a range of programs such as education, research, improved communications and working with partners will reduce pedestrian casualties across the network.

Improve pedestrian safety through enforcement and greater compliance.		
Action	Description	Responsibility
27.	Continue the Sydney CBD and Parramatta Motorcycle Response teams operation to address pedestrian safety.	NSW Police Force Transport for NSW
28.	Support the Motorcycle Response teams with the provision of education resources about road rules to support safer road use by pedestrians.	Transport for NSW NSW Police Force
Review the application of shared paths and safer interaction between pedestrians and bicycle riders.		
Action	Description	Responsibility
29.	Undertake research into shared path safety.	Transport for NSW
30.	Trial and evaluate the use of advisory speed signage on shared paths.	Transport for NSW
31.	Develop policy and guidelines for shared path safety.	Transport for NSW Roads and Maritime Services
Develop communications and awareness campaigns to promote safety with pedestrians and other road users.		
Action	Description	Responsibility
32.	Develop appropriate communications for drivers, bicycle riders and pedestrians on key issues: <ul style="list-style-type: none"> • Road Rules Awareness • Road user interaction messaging • Crossing safely at different crossing types • Benefits of lower speed limits for pedestrians. 	Transport for NSW
33.	Continue the work of the school based road safety education programs to educate children (pre-school to Year 12) on safe road use.	Transport for NSW
34.	Establish forums to provide local government with guidance on road safety measures (including pedestrian safety) and knowledge sharing among road safety professionals.	Transport for NSW Roads and Maritime Services NSW Police Force
Work with Local Governments to develop and implement behavioural programs.		
Action	Description	Responsibility
35.	Work with local governments to develop localised road safety programs for their community, including for older road users and people with disabilities, such as the visually impaired.	Roads and Maritime Services
Improve mobility scooter safety.		
Action	Description	Responsibility
36.	Implement approved actions from the Staysafe Committee inquiry into non-registered motorised vehicles and the Austroads research into new and emerging mobility devices.	Transport for NSW
37.	Monitor new and emerging mobility devices that become available to the market to ensure safety messaging is appropriate.	Transport for NSW

5. SUMMARY

This action plan has been developed collaboratively with road safety stakeholders. Using evidence, such as national and international research, evaluation and road safety data, the actions contained in this document will help to improve pedestrian safety.

With the projected increase in walking rates, growing population and ageing population, these changes represent challenges that must be considered throughout the implementation of the action plan.

The action plan recommends a range of actions under the safe systems approach to be addressed over the next three years. The implementation and progress of these actions will be coordinated by Transport for NSW's Centre for Road Safety. In addition to this document, it will be supported by other road safety actions including continued enforcement of road rules by the NSW Police Force and ongoing high visible police enforcement activities.

The effectiveness of this plan will be monitored along with the evaluation of programs through:

- Reduced pedestrian fatalities
- Reduced pedestrian serious injuries
- Reduced pedestrian key identified crash types
- Effectiveness of communications in changes attitudes and behaviours
- Road engineering treatments providing positive crash reductions
- Insight into pedestrian behaviours and attitudes
- Development of new safety treatments to address pedestrian safety

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